

**INTERSTATE COMMERCE COMMISSION**

**WASHINGTON**

**REPORT NO. 3541**

**THE ATCHISON, TOPEKA AND SANTA FE  
RAILWAY COMPANY**

**IN RE ACCIDENT**

**NEAR MOLINE, KANS., ON**

**OCTOBER 23, 1953**

SUMMARY

Date: October 23, 1955  
Railroad: Atchison, Topeka and Santa Fe  
Location: Moline, Kans.  
Kind of accident: Head-on collision  
Trains involved: Freight : Freight  
Train numbers: Work train 3015 : Extra 107 West  
Engine numbers: Diesel-electric unit 3015 : Diesel-electric units 107L, 107A, and 107B  
Consists: 42 cars : 22 cars, caboose  
Speeds: 2 m. p. h. : 36 m. p. h.  
Operation: Timetable and train orders  
Track: Single; 3° curve; 0.023 percent ascending grade eastward  
Weather: Clear  
Time: 4:40 p. m.  
Casualties: 1 killed; 4 injured  
Cause: Train occupying main track without protection

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3541

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS  
UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY

December 10, 1953

Accident near Moline, Kans., on October 23, 1953, caused  
by a train occupying the main track without  
protection.

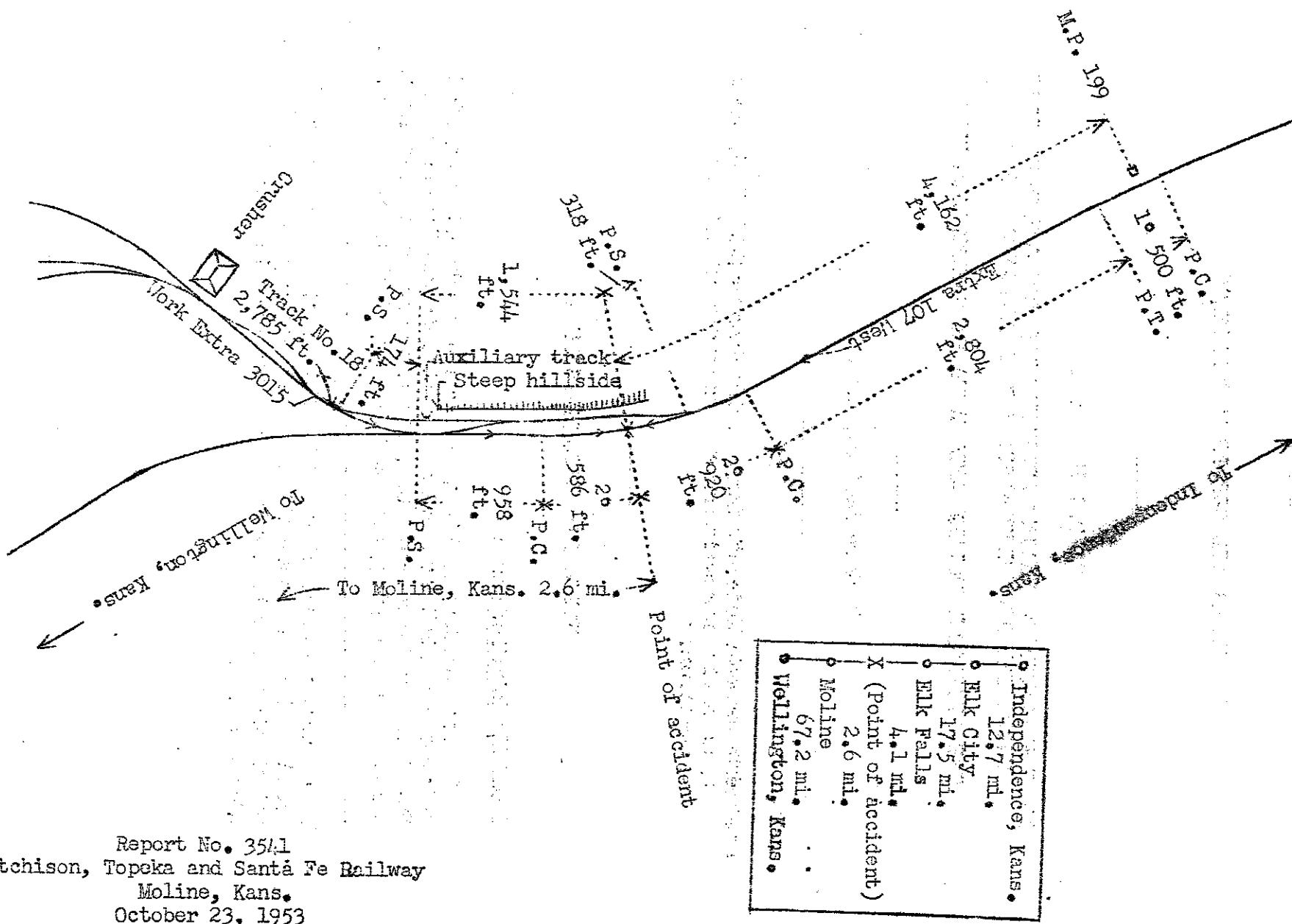
<sup>1</sup>  
REPORT OF THE COMMISSION

CLARKE, Commissioner:

On October 23, 1953, there was a head-end collision  
between two freight trains on the Atchison, Topeka and  
Santa Fe Railway near Moline, Kans., which resulted in the  
death of one employee, and the injury of four employees.

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<sup>1</sup>  
Under authority of section 17 (2) of the Interstate Com-  
merce Act the above-entitled proceeding was referred by the  
Commission to Commissioner Clarke for consideration and  
disposition.



Report No. 3541  
Atchison, Topeka and Santa Fe Railway  
Moline, Kans.  
October 23, 1953

Location of Accident and Method of Operation

This accident occurred on that part of the Oklahoma Division extending between Wellington and Independence, Kans., 104.1 miles. In the vicinity of the point of accident this is a single-track line, over which trains are operated by timetable and train orders. There is no block system in use. The accident occurred on the main track at a point 69.8 miles east of Wellington and 2.6 miles east of Moline. An auxiliary track 2,785 feet in length, designated as track No. 18, diverges northward from the main track at a switch located 1,544 feet west of the point of accident. The switch is trailing-point for east-bound movements. There are several curves and short tangents on track No. 18. A second auxiliary track, which parallels the main track on the north, extends between a switch in track No. 18 located 174 feet west of the main-track switch of that track and a switch in the main track 318 feet east of the point of accident. Other auxiliary tracks diverge from track No. 18 at various points throughout the length of the track. These auxiliary tracks are used for the storage and loading of cars and other purposes in conjunction with operations at a stone crusher located adjacent to track No. 18 at a point approximately 1,800 feet northwest of the main-track switch. Eastward from the main-track switch of track No. 18 there are, in succession, a tangent 958 feet in length and a 2° curve to the left 586 feet to the point of accident and 920 feet eastward. From the east there are, in succession, a 1° curve to the left 500 feet in length, a tangent 2,804 feet, and the curve on which the accident occurred. At the point of accident the grade is 0.023 percent ascending eastward.

This carrier's operating rules read in part as follows:

14. Engine Whistle Signals

Note.--The signals prescribed are illustrated by "o" for short sounds; "—" for longer sounds.

\* \* \*

SOUND	INDICATION
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\* \* \*

(c) — o o o

Flagman protect rear of train.

\* \* \*

35. The following signals will be used by flagmen:

Day Signals--A red flag,  
Torpedoes, and  
Fusees.

99. \* \* \*

When a train stops under circumstances in which it may be overtaken by another train, the flagman must go back immediately with flagman's signals a sufficient distance to insure full protection, placing two torpedoes and, when necessary, in addition, displaying lighted fusees.

The front of the train must be protected in the same way, when necessary, by the brakeman or fireman.

99 (C). When it is known by engineman that his train will be delayed under conditions requiring flag protection, he will immediately whistle out flagman.

210. \* \* \*

Enginemens must show train orders and clearance cards to firemen and, when practicable, to head brakemen; conductors, when practicable, must show them to brakemen. Brakemen and firemen are required to read train orders and clearance cards, reminding conductor and engineman of their contents when needful. \* \* \*

#### FORMS OF TRAIN ORDERS,

\* \* \*

S-H

Work Extra.

- (1) Eng 292 works extra six forty five 6 45 A M until five forty five 5 45 P M between B and E.

The work extra must, whether standing or moving, protect itself against extra trains within the working limits in both directions as prescribed by the rules. \* \* \*

This may be modified by adding:

\* \* \*

- (b) Not protecting against extra trains.

Protection against extra trains is not required.  
\* \* \*

- (c) Extra 173 East wait at  
E until nine fifteen 9 15 A M  
Extra 209 East wait at  
E until twelve ten 12 10 P M  
and other Eastward Extras wait at  
E until five forty five 5 45 P M  
for Work Extra 292,

The work extra will protect against the eastward extras named after the times specified in the order.  
\* \* \*

\* \* \*

\* \* \*

Whenever extra trains are run over working limits they must be given a copy of the order sent to the work extra. Should the working order instruct a work extra to not protect against extra trains in one or both directions, such extra trains must protect against the work extra; if the order indicates that the work extra is protecting itself against other trains, they will run expecting to find the work extra protecting itself.

The maximum authorized speed for freight trains is 45 miles per hour.

Description of Accident

At Moline, members of the crew of Diesel-electric unit 3015 received copies of train order No. 836, reading in part as follows:

Eng 3015 works Extra nine ten 910 AM until  
nine ten 910 PM between Moline and Elk Falls  
\* \* \* not protecting against Extra 107 West  
until three ten 310 PM not protecting against  
other Extras.

In addition the crew received copies of train order No. 862, which read as follows:

Extra 107 West wait at  
MP 199 until four thirty 430 PM  
for Work Extra 3015.

Elk Falls and M.P. 199 are located, respectively, 6.7 miles and 3.4 miles east of Moline. Work Extra 3015, with the locomotive headed west and coupled to the east end of a cut of 30 cars, departed eastward from Moline about 3:35 p. m. and arrived at track No. 18 about 3:45 p. m. Switching service was performed on the auxiliary tracks adjacent to the stone crusher, and a cut of 42 cars was assembled on track No. 18 for the return movement to Moline. The locomotive, coupled to the east end of the cut of cars and moving in backward motion, proceeded eastward, entered the main track about 4:35 p. m., and while moving at a speed of about 2 miles per hour it collided with Extra 107 West at a point 1,544 feet east of the main-track switch and 4,162 feet west of M.P. 199.

Extra 107 West, a west-bound freight train, consisted of Diesel-electric units 107L, 107A, and 107B, coupled in multiple-unit control, 22 cars, and a caboose. At Independence members of the crew received, among others, copies of train orders Nos. 836 and 862. This train departed from Independence at 3:10 p. m. It performed switching service at Elk City, 21.6 miles east of the point of accident and the last open office, and departed from that point at 3:40 p. m. Switching service was performed at Elk Falls. The train departed from this point soon after 4:30 p. m., and while moving at a speed of about 36 miles per hour it collided with Work Extra 3015.

The Diesel-electric unit of Work Extra 3015 was derailed and stopped on its right side, north of the main track and parallel to it, and 25 feet east of the point of collision. It was badly damaged. The first five cars were derailed and stopped approximately in line with the track. The first two cars were badly damaged, and the fifth car was destroyed. The Diesel-electric units, the first 12 cars, and the front truck of the thirteenth car of Extra 107 West were derailed. The first Diesel-electric unit stopped on its right side, with the front end about 10 feet west of the point of collision. The control compartment was demolished, and the unit was further damaged by fire. The second and third Diesel-electric units stopped upright and in diagonal positions behind the first unit. The rear end of the third unit was approximately 25 feet south of the center-line of the main track. The second and third Diesel-electric units were somewhat damaged. The first 12 cars stopped in various positions on or near the main track and the adjacent auxiliary track. The thirteenth car stopped in line with the track. The first 11 cars were destroyed and the twelfth car was considerably damaged.

The engineer of Extra 107 West was killed. The engineer and the fireman of Work Extra 3015 and the fireman and the front brakeman of Extra 107 West were injured.

The weather was clear at the time of the accident, which occurred about 4:40 p. m.

Diesel-electric unit 3015 is of the road-switcher type. The engine compartment is at the rear of the unit. It is provided with 24-RL brake equipment.

#### Discussion

The crews of both trains held copies of train orders Nos. 836 and 862. Under the rules Work Extra 3015 was required to clear the main track between Moline and Mile Post 199 not later than 4:30 p. m. or to provide flag protection against Extra 107 West as prescribed by rule No. 99. Extra 107 West was required to wait at Mile Post 199 until 4:30 p. m., if it reached that point before 4:30 p. m., and was then required to run expecting to find Work Extra 3015 protecting itself. All members of the crew of Work Extra 3015 read and understood these orders.

On the east-bound trip from Moline to track No. 18 all members of the crew of Work Extra 3015, except the flagman, rode in the control compartment of the locomotive. Before the train arrived at track No. 18 the conductor reminded the other employees on the locomotive that flag protection against Extra 107 West was required after 4:30 p. m., if their train was not clear of the main track at that time.

When the train stopped at track No. 18 the conductor proceeded to the plant office to ascertain the work requirements. The rear portion of the train was left on the main track while switching service was performed on the auxiliary tracks in the vicinity of the stone crusher. Between 4:05 p. m. and 4:10 p. m. the rear portion of the train was moved from the main track to track No. 18. Additional switching then was performed. Because of track curvature, hand signals were transmitted from either side of the track or from an elevated platform provided for that purpose. The engineer said that at times only one member of the train crew was visible from the locomotive and that when his signals could not be seen from the engineer's position they were relayed by the fireman. Dust from the operation of the stone crusher materially restricted visibility in the vicinity of the plant, and all movements were made at low speed. The conductor remained in the vicinity of the stone crusher during the time that switching was being performed. When the switching was completed he gave a signal for an eastward movement. After the signal was relayed to the enginemen by the flagman and the front brakeman, the movement was started. At this time the conductor could not see the front end of the train, and he did not know whether the locomotive was moving toward the main track or toward the auxiliary track which parallels the main track on the north. He said that although he had not given specific instructions as to which member of the crew was to provide flag protection, he expected some member of the crew to provide protection when it was required. When the movement was started only one member of the crew was visible to the conductor, and he assumed that if the train was moving toward the main track the other member of the train crew was providing protection. The front brakeman entered the service of the carrier as a brakeman on May 26, 1953. He said that on the day before the accident occurred his crew had received a train order in which a west-bound extra train was instructed to wait at Mile Post 199 until 5:01 p. m. On the day of the accident he confused this time with the time specified in train order No. 862 and did not realize that flag protection

was required after 4:30 p. m. The flagman said he knew that protection was required after 4:30 p. m., but he was not aware that it was later than that time when the movement was started. The engineer said that because the train was clear of the main track before 4:30 p. m. he had not sounded an engine-whistle signal for a member of the train crew to provide flag protection. When the eastward movement was started, in response to a signal from a member of the train crew, the engineer observed that it was 4:35 p. m. At this time only one member of the train crew was visible from the locomotive, and when the engineer observed that the switches were lined for movement from track No. 18 to the main track he assumed that another member of the train crew had proceeded eastward to provide protection. The fireman said that he was not aware that it was later than 4:30 p. m. when the movement was started.

After the locomotive entered the main track the engineers were in their respective positions in the control compartment, the front brakeman and the flagman were a short distance west of the main-track switch of track No. 18, and the conductor was on the thirty-seventh car. The speed was about 4 miles per hour. The conductor said that he became concerned when he observed the front brakeman and the flagman together. He alighted when he reached them and asked them whether the fireman was providing protection. When the front brakeman replied that protection was not yet required, the conductor immediately proceeded toward the locomotive. The collision occurred a few seconds later. The engineer said that as the train moved eastward he was looking westward for hand signals from members of the train crew and was glancing in the direction of movement at intervals. Because of track curvature and a hillside north of the track, the range of vision between opposing trains in the immediate vicinity of the point of accident is restricted to a distance of approximately 1,000 feet. When the engineer observed Extra 107 West approaching he immediately made an emergency application of the brakes and warned the fireman. He estimated that the locomotive of Extra 107 West was about 500 feet distant when he first saw it.

As Extra 107 West was approaching the point where the accident occurred the engineer and the front brakeman were in the control compartment at the front of the locomotive and the fireman was in the engine compartment of the rear Diesel-electric unit. The conductor and the flagman were in the caboose. The speed was about 37 miles per hour, as indicated by the tape of the speed recording device. The headlight was lighted.

The brakes of this train had been tested and had functioned properly when used en route. This train had performed switching service at Elk Falls. It departed from that point soon after 4:30 p. m., the time specified at Mile Post 199 in train order No. 862. The fireman said that after the train departed from Elk Falls he was observing operation of equipment in the engine compartment of the rear Diesel-electric unit. He said that the engines of this unit were idled a few seconds before the accident occurred. The engineer and the front brakeman alighted from the locomotive immediately before the collision occurred. The engineer was killed, and the front brakeman was so badly injured that he could not be questioned during this investigation.

Cause

This accident was caused by a train occupying the main track without protection.

Dated at Washington, D. C., this tenth day of December, 1953.

By the Commission, Commissioner Clarke.

(SEAL)

GEORGE W. LAIRD,

Secretary.